HOLEMAKER PRO 50

Holemaker Portable Magnetic Drilling Machine

OPERATOR'S MANUAL

⚠ WARNING!

BEFORE USE, ENSURE EVERYONE USING THIS MACHINE READS AND UNDERSTANDS ALL SAFETY AND OPERATING INSTRUCTIONS IN THIS MANUAL .

EYE PROTECTION REQUIRED

HEARING PROTECTION REQUIRED

NEVER PLACE FINGERS NEAR CUTTING AREA OR MACHINE ARBOR

LINE VOLTAGE PRESENT

BEWARE OF ROTATING MACHINE PARTS

Serial # _____ Date of Purchase _____

Holemaker PRO 50 Portable Magnetic Drilling Machine

Congratulations on the purchase of your Holemaker Pro 50 portable magnetic drilling machine.
Holemaker drilling machines are designed to deliver fast, efficient hole drilling performance in portable applications.

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LIMITED WARRANTY

Industrial Tool & Machinery Sales (hereinafter refered to as ITMS) will, within twelve (12) months from the original date of purchase, repair or replace any goods found to be defective in materials or workmanship. This warranty is void if the item has been damaged by accident, neglect, improper service or other causes not arising out of defects in materials or workmanship.

This warranty does not apply to machines and/or components which have been altered, changed, or modified in any way, or subjected to overloading or use beyond recommended capacities and specifications. Worn componentry due to normal wear and tear is not a warranty claim.

Goods returned defective shall be returned prepaid freight to ITMS or agreed repair agent, which shall be the buyer's sole and exclusive remedy for defective goods. ITMS accepts no additional liability pursuant to this guarantee for the costs of travelling or transportation of the product or parts to and from ITMS or the service agent or dealer, such costs are not included in this warranty.

Our goods come with guarantees which cannot be excluded under the Australian Consumer Law. You are entitled to replacement or refund for a major failure and to compensation for other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

THE MANUFACTURER RESERVES THE RIGHT TO MAKE
IMPROVEMENTS AND MODIFICATIONS TO DESIGN WITHOUT PRIOR NOTICE.

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IMPORTANT SAFETY INSTRUCTIONS

⚠ WARNING!

WHEN USING ELECTRICAL TOOLS, BASIC SAFETY PRECAUTIONS SHOULD ALWAYS BE FOLLOWED TO REDUCE RISK OF FIRE, ELECTRIC SHOCK AND PERSONAL INJURY.

READ AND SAVE ALL INSTRUCTIONS FOR FUTURE REFERENCE.

1. Keep Work Area Clean
   - Cluttered areas and benches increase risk of injuries.

2. Consider Work Area Environment
   - Do not expose power tools to rain.
   - Do not use power tools in damp or wet locations.
   - Keep work area well lit.
   - Do not use tool in presence of flammable liquids or gases.

3. Guard Against Electric Shock
   - Prevent body contact with grounded surfaces. For example: pipes, radiators, ranges and refrigerator enclosures.

4. Keep Children Away
   - Do not let visitors contact tool or extension cord.
   - All visitors should be kept away from work area.

5. Store Idle Tools
   - When not in use, tools should be stored in a dry, high and locked-up place, out of reach of children.

6. Do Not Force Tool
   - It will do the job better and safer at the rate for which it was intended.

7. Use Right Tool
   - Do not force a small tool or attachment to do the job of a heavy-duty tool.
   - Do not use tool for unintended purpose. For example: Do not use a circular saw for cutting tree limbs or logs.

8. Dress Properly
   - Do not wear loose clothing or jewellery. They can be caught in moving parts.
   - Rubber gloves and non-skid footwear are recommended when working outdoors.
   - Wear protective hair covering to contain long hair.
   - Always wear safety glasses
   - Use face or dust mask if necessary
   - Use hearing protection

9. Do Not Abuse Electrical Cord
   - Never carry tool by cord or yank it to disconnect from receptacle.
   - Keep cord away from heat, oil and sharp edges.

10. Secure Work
    - Use clamps or a vise to hold work. It's safer than using your hand and it frees both hands to operate tool.

11. Do Not Overreach
    - Keep proper footing and balance at all times.

IMPORTANT SAFETY INSTRUCTIONS

12. Maintain Tools With Care
    - Keep tools sharp and clean for better and safer performance.
    - Follow instructions for lubricating and changing accessories.
    - Inspect tool cords periodically and if damaged, have repaired by authorized service facility.
    - Inspect extension cords periodically and replace if damaged.
    - Keep handles dry, clean, and free from oil and grease.

13. Disconnect Tools
    - Unplug when not in use, before servicing, and when changing accessories, such as cutters.

14. Remove Adjusting Keys And Wrenches
    - Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.

15. Avoid Unintentional Starting
    - Do not carry a plugged-in tool. Always disconnect from power source before moving.
    - Be sure switches are off before connecting to a power source.

16. Outdoor Use Of Extension Cords
    - When tool is used outdoors, use only extension cords intended for use outdoors and so marked.

17. Stay Alert
    - Watch what you are doing. Use common sense. Do not operate tool when you are tired.
    - Do not use when taking medications that may cause drowsiness.

18. Check Damaged Parts
    - Before further use of the tool, any damaged parts should be repaired and performance verified prior to operation.
    - Check alignment of moving parts, binding of parts, breakage of parts, mounting, and any other conditions that may affect its operation. Any part that is damaged should be properly repaired or replaced by an authorized service center.
    - Do not use this tool if switches do not turn it on and off. Have defective switches replaced by authorized service center.

19. Use Cutter Guard
    - Always use cutter guard supplied with machine to reduce the risk of injury. (refer fig. 1)

Fig. 1

POWER SUPPLY REQUIREMENTS

Prior to use check condition of the power cord, which has to be free of any cuts, or similar damages.

Attention!: This unit has a class one of insulation and absolutely requires the power source to be equipped with a protection circuit.

Power source should be protected with the difference-current circuit cut-out and protected with a 10A fuse - for 230V. At building sites, power should be supplied from a separation transformer such as Type AVM, with minimum power of 2000 VA and with second class protection.

GROUNDING INSTRUCTIONS

⚠ WARNING!

Improperly connecting the grounding wire can result in the risk of electrical shock. Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded. Do not modify the plug provided with tool. Never remove the grounding prong from the plug. If the cord or plug is damaged, have it repaired before using. If the plug will not fit the outlet, have a proper outlet installed by a qualified electrician. The Holemaker must be plugged into an appropriate outlet, properly installed and grounded in accordance with all codes and ordinances. The plug and outlet should look similar to those in Figure A. If in doubt of proper grounding, call a qualified electrician.

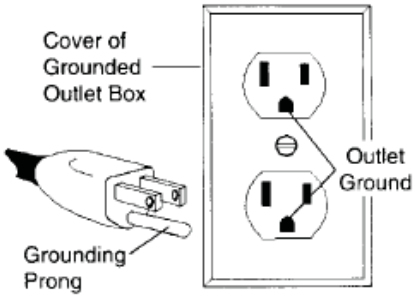


Fig. A

⚠ WARNING!

DO NOT USE HOLEMAKER DRILLING MACHINES ON SURFACES OR MATERIALS BEING WELDED. DOING SO CAN RESULT IN DAMAGE TO THE DRILLING MACHINE.

EXTENSION CORDS

Use only 3-wire extension cords that have 3-prong grounding-type plugs and 3-pole receptacles that accept the tool's plug. Replace or repair damaged cords. Make sure your extension cord is in good condition. When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating. See table for the correct size to use depending on cord length and nameplate amperage rating. If in doubt, use the next heavier gauge. The smaller the gauge number, the heavier the cord.

DRIP LOOP: To help prevent cutting fluids from traveling along power cord and contacting power source, tie a drip loop in power cord as shown in Figure C.

MINIMUM GAUGE FOR EXTENSION CORDS				
VOLTS	TOTAL LENGTH OF CORD IN METRES			
240V	0 - 15	15 - 30	30 - 60	60 - 90
AMPERAGE				
0-6	18	16	16	14
6-10	18	16	14	12
10-12	16	16	14	12
12-16	14	12	NOT RECOMMENDED	
RECOMMENDED WIRE GAUGE				

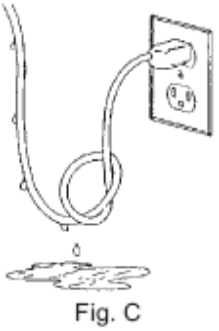
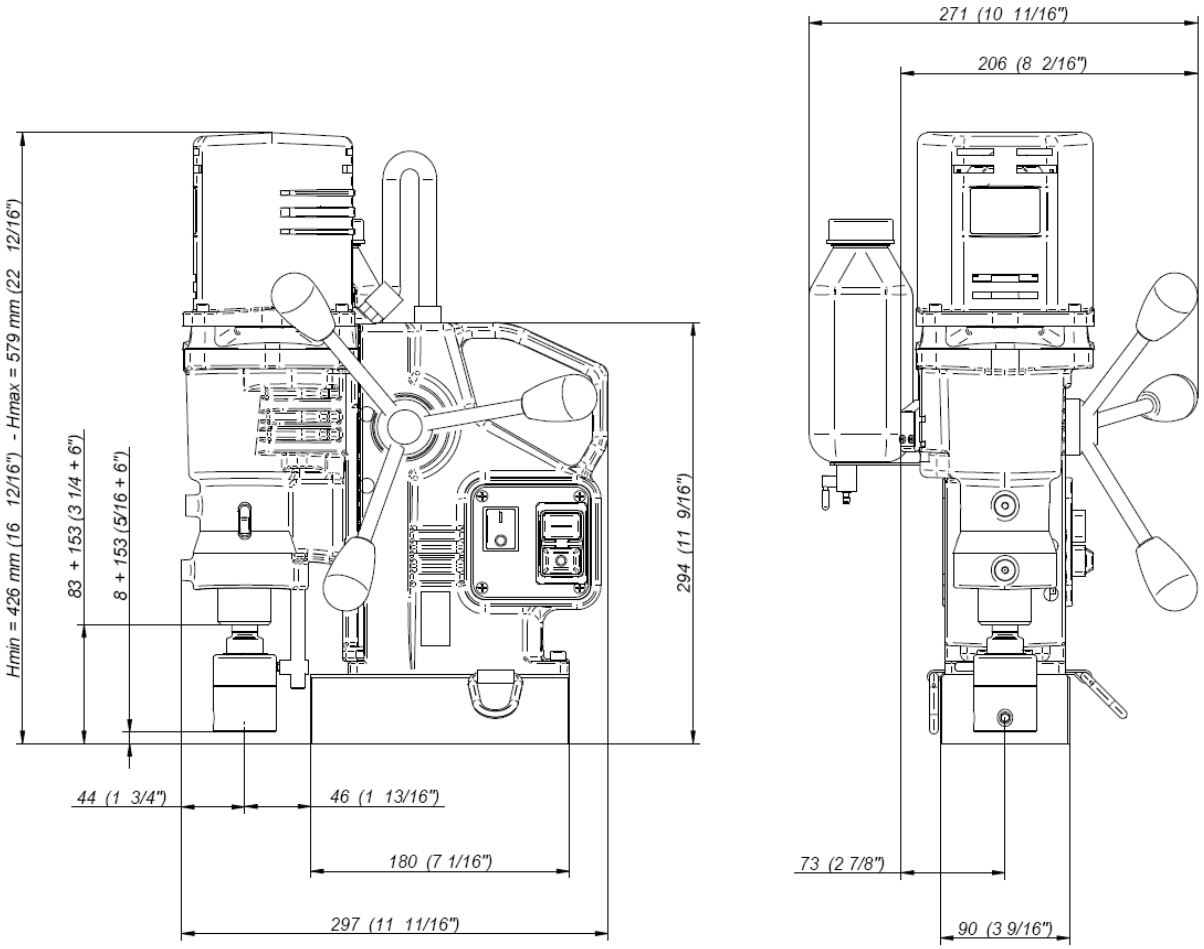


Fig. C

TECHNICAL DATA



Supply voltage: …… 220-240V/ 50-60 Hz.
Motor power …….. 1260 W
Total power …….. 1300 W
Machine speeds (under load): ……..... Gear 1: 200rpm
Gear 2: 400rpm
Insulation class …….. First
Arbor bore ……. MT 2
Tool holder …… ($^3/_4$" Weldon) 19.05 mm
Capacities: max. Holemaker cutter diameter ……..... 52mm
max. drilling depth with standard arbor ……..... 52mm
max. drilling depth with optional arbor ……..... 75mm
Magnet Dead Lift (on 25 mm plate) ……..... 12000 N
Dimensions:
electromagnetic base …..... 90x180x48 mm
Length of the power cord ……..... 3 m
Total weight ……..…..... 16.5 kg
Noise level ……..…….. 85 dB

SPECIAL INSTRUCTIONS

1. Read and follow operator's manual thoroughly.
2. DO NOT touch rotating cutter or parts.
3. Always stop machine completely and unplug from power source before changing cutters, clearing swarf, refilling lubrication or performing adjustments.
4. Never wear loose clothing or gloves when working near cutting area or machine arbor.
5. Always wear eye protection. Any tool can shatter.
6. Always use safety chain or strap provided with machine.
7. Always use proper tooling. Keep cutters securely fastened.
8. DO NOT use dull or broken cutters.
9. Beware of ejected slugs at end of cut. They become HOT during the cut.
10. Keep all safety features functioning and working properly.
11. Keep bottom of magnet burr free and clear of chips and debris.
12. To reduce the risk of electrical shock, DO NOT remove or alter electrical panels or use machine in damp areas.
13. Use only authorized service centers for repairs.

Remove all contents from packaging and inspect to ensure no damage was incurred during shipping.
Your Holemaker package should include the following:

DESCRIPTION	QTY
HOLEMAKER PRO50 MACHINE	1
METAL CARRY CASE	1
SAFETY CHAIN WITH CLIP	1
SAFETY GUARD	1
HEX WRENCH 4	1
HEX WRENCH 5	1
SPOKE HANDLE WITH KNOBS	3
#2MT ARBOR ASSEMBLY	1
COOLANT BOTTLE ASSEMBLY	1
DRILL DRIFT	1
OPERATORS MANUAL	1

Assemble three spoke handles to feed hub. NOTE: Feed hub assembly is mounted on right side of machine frame – if necessary, it can be reversed for lefthand operation by simply removing the fastener and hub from frame. Remove hub pinion shaft from right side of frame and insert it into left side of frame. Replace hub and fastener into frame and tighten securely. Install the arbor into the drill motor by inserting the arbor body into the spindle. By turning the arbor while inserting, the arbor tang will properly line up in the spindle. Turn the arbor until it bottoms out in the spindle and then tap lightly with a plastic hammer to secure.

WHAT YOU SHOULD KNOW BEFORE YOU DRILL

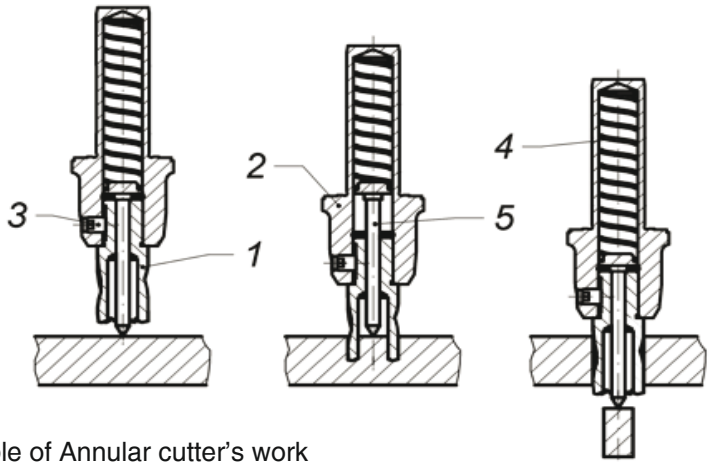
1. Type of material to be drilled, Brinnell or Rockwell hardness, material thickness and position should all be determined to ensure proper selection of cutting tools.
2. Remove any excessive mill scale or rust from surface to be drilled.
3. When drilling thin materials, it is recommended that you place a steel plate under the work piece and Holemaker magnet area to increase magnetic holding force.
4. Material that has been flame cut may become heat treated and therefore difficult to drill. Avoid drilling near such areas whenever possible.
5. Special cutter lubricant is available for using the Holemaker and annular cutters in the horizontal position. Consult you distributor for more information.

⚠ Caution: Do not drill on material where welding is also simultaneously being performed. Drilling machine will be damaged.

⚠ Caution: Powering drilling machine from generator without proper surge protection device between generator and drilling machine may cause damage to the Printed Circuit Board in machine.

⚠ The Holemaker Pro 50 is not designed for use on steel thinner than 3/8" or 10mm, as the magnet's adhesive power would be significantly reduced which can cause machines failure or individuals injury.
The machines built in "Smart Magnet Technology" will detect insufficient magnetic adhesion, and will cause the machines motor on/off button to not engage. Although it is not recommended, this feature can be bypassed by following the attached "Smart Magnet Technology Bypass" instruction leaflet.

CAUTION: READ THE WHOLE INSTRUCTIONS MANUAL BEFORE ATTEMPTING TO START UP

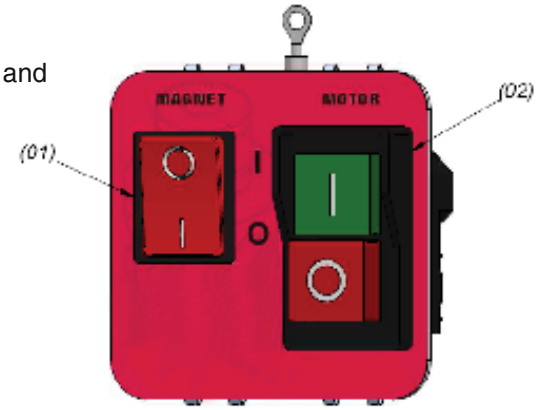


Principle of Annular cutter's work

This drilling machine's spindle has a 19mm Weldon Shank type and is specifically designed for use with Annular cutters.

Annular cutter (1) is located inside arbor body (2) and is fastened with grub screws (3). When fastening the cutter in the arbour, ensure that the grub screws are firmly tightened to avoid them coming loose during operation. It is important to position the cutter in relation to the arbour in such a way that fixing flats on the cutter shank are positioned opposite to the grub screws (3). Both grub screws(3) should be used to fasten the cutter. The Pilot Pin (5) is located inside the cutter to easily position the annular cutter over centre of a planned hole. During drilling as the cutter goes into the material, the pilot pin moves back into the arbour body and pressurizes the discharge spring (4).That spring ejects the slug which is a by-product of drilling the hole with a centre free cutter.

The machine is supplied in a metal box. Some components of the drilling machine are coated with grease film for protection during transit and storage. Prior to use of the machine this should be wiped clean.



CONTROL PANEL

Control elements include:

- Magnet Switch (1),
- Start-Stop Switch (2),

a) In order to start the machine press the magnet switch (1) on "I". Now you can start the motor by pressing Start-Stop Switch (2) green button "I"

b) Stopping the motor is executed with red button „O" (the motor is switched OFF but the electromagnetic base is still ON).

c) To move machine into next drilling spot, stop the motor as described above and push the magnet switch (1) to the position "O".

NOTE: As a power saving function, Switching the Magnet Switch(1) to "I" will supply the electromagnet with 50% power. Switching the Start-Stop Switch(2) to "I" will increase the electromagnet to 100% power.

Before you cut

Before positioning the machine on work piece always make sure that:

- work piece is made of ferrous material
- thickness of work piece is adequate for secure magnetic adhesion (mild steel - 10mm is recommended)
- Ensure no part of magnet overhangs the steel workpiece
- surface of steel under the magnet is flat
- wipe, brush or sand down clean surface where you intended to place the drilling machine, so that you remove rust, paint, dirt etc which would reduce adhesive power of the electromagnetic base.

Install annular cutter in the machine before plugging it into mains.
Place the machine so that the tool is over the centre of the hole you intend to make and turn the magnetic base ON.

Always make sure prior to use that the machine is secured from falling down with a chain/strap.

An example of a safety chain/strap use.

Cutting

- Choose a suitable lubricating fluid and fill the coolant tank.
The cooling system is an integral part of the machine and should always be used.
Warning: The cooling system works gravitationally, therefore it can be used only when in vertical position of the drilling machine. In other positions, a cutting paste should be used
- Check workings of cooling system. Open the coolant tank's tap and apply pressure on the pilot by turning spokes counter clockwise. As the pilot starts to sink into the cutter, cooling liquid should start to run down the groove in pilot pin. If there is no liquid flowing down, check if the tap is fully opened. It may take a few seconds for cooling liquid to fill the whole system.

- Select a suitable rpm speed for the machine to run at, using the table below as a guide. Once a suitable speed has been decided upon, select that speed using the gear switch on the side of the gearbox.

The cutter diameter		Rotary speed [rpm]
[inch]	[mm]	
1.00 - 1.50	12 - 35mm	400
1.51 - 2.00	36 - 50mm	200

- Turn the motor on.

Bring the cutter gently into contact with the work piece and slowly start to apply pressure on the cutter.

Making a hole with an annular cutter should ideally be done in one pass.
Do not peck drill.

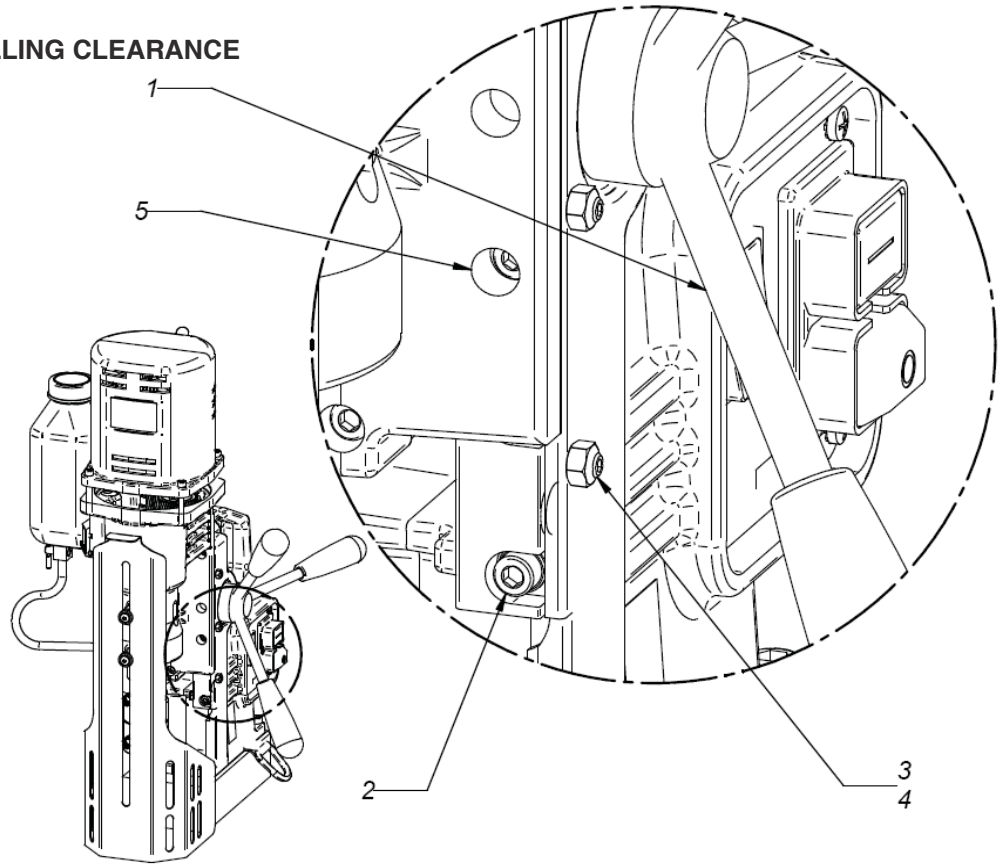
WARNING : When the annular cutter goes through the material the slug can be pushed out often with considerable strength.
Pay attention to avoid injury.

- After a hole is made the cutter should be retracted and both the motor and the electromagnet should be switched OFF.
- When work with the machine is finished the power cord should be disconnected from the power source, the machine should be cleaned up from swarf, coolant etc and the cutter should be removed and cleaned.

MAINTENANCE AND SERVICE

- Every 250 hours of work check condition of carbon brushes. If their length is less than 5 mm they should be replaced with new genuine brushes. After replacement, new brushes should be run-in without load for about 20 min. Repair and service work is to be performed by authorized service agents only.
- Keep the magnet clean and free of chips, oil or other contaminants.
- Inspect arbor, sleeve and support bracket for visible wear.
- Replace any worn parts and tighten any fasteners that may have come loose during daily usage.

CANCELLING CLEARANCE



the screws (2) fixing the strip to the drill body visible through the openings in the slider (5). To loosen screws (2), the slider should be placed in such a position (using feed handles) so that the openings make the screws visible. After loosening the screws slide the slider up and down several times so that the pressure strip aligns itself and cancels clearance.

After carrying out these steps and canceling clearance, tighten screws (2) starting from the middle screw. The slider should be located symmetrically relative to the middle screw. Next, tighten the neighboring screws (2) moving the slider in the degree necessary for making them visible. Then, tighten screws (3) until any noticeable resistance is felt. When the screw in this position and blocked with a hexagonal key, tighten counter nut (4). The screws (3) counteract the machining force and protect the pressure strip from shifting during operation.

BASIC TROUBLESHOOTING

1. Magnetic base not holding securely
   - Material is too thin.
   - Surface of material being drilled must be free of chips, debris, rust and mill scale.
   - Does size of cutter exceed machine's rated capacity?
   - Check magnet face for unevenness, nicks and burrs.

2. Drill motor running, arbor and spindle not turning
   - Possible sheared drive train component.

3. Motor slows when drilling
   - Is an extension cord being used? If so, see page 5 for recommended wire gages and cord lengths.
   - Excessive downfeed pressure during drilling cycle will cause motor to slow and overheat.
   - Does cutting tool need to be resharpened?

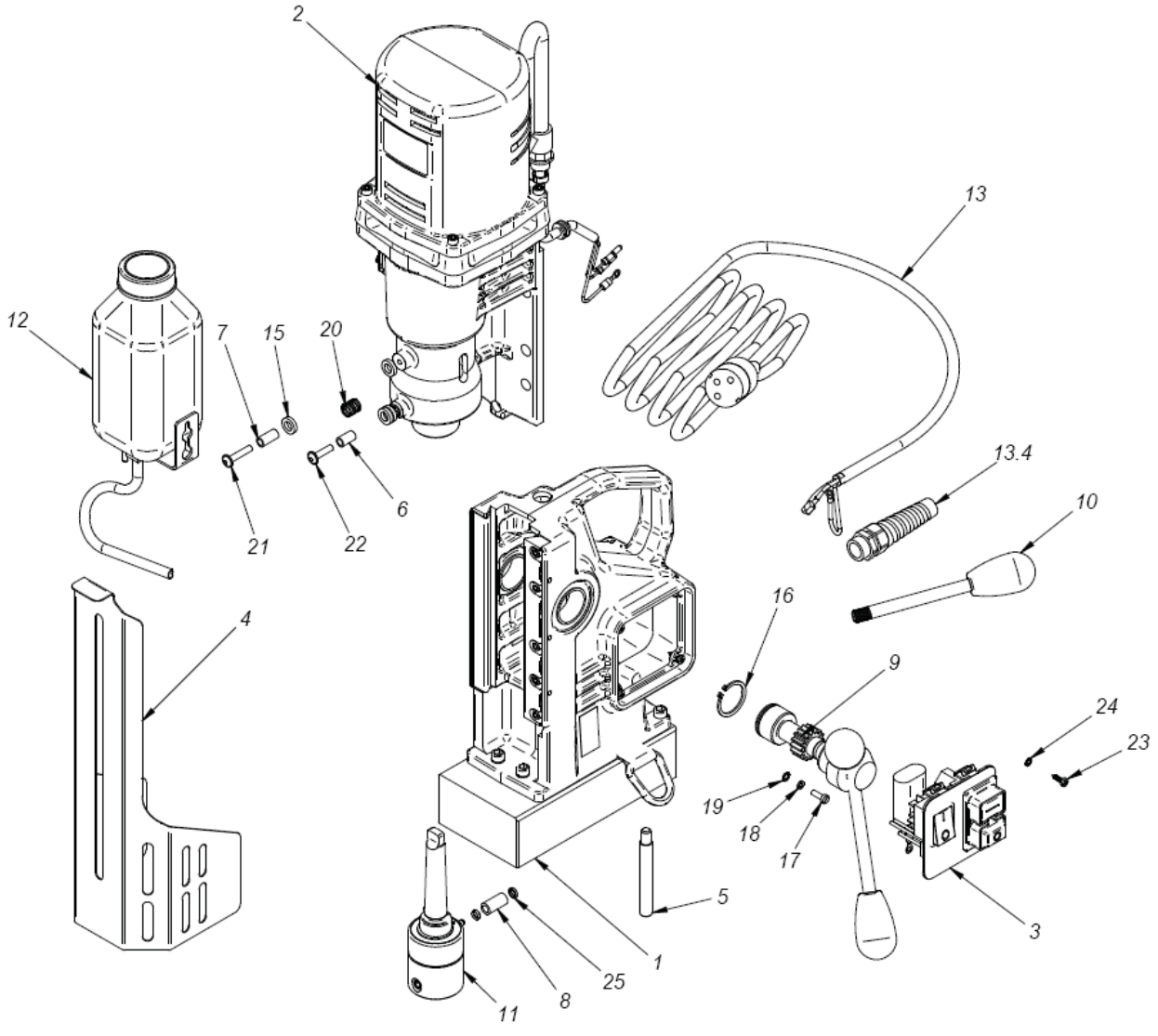
4. Coolant system not working
   - Coolant system is gravity dependent, machine must be in a upright position to operate properly.
   - Dirt or debris in coolant tank.
   - Consistency of coolant mixture too thick.
   - Is correct pilot pin being used?
   - Vent hole in coolant tank lid blocked.

5. Slugs not ejecting from cutter
   - Lack of coolant causing slugs to expand in cutter bore.
   - Is correct pilot pin being used?
   - Possible broken internal arbor parts.

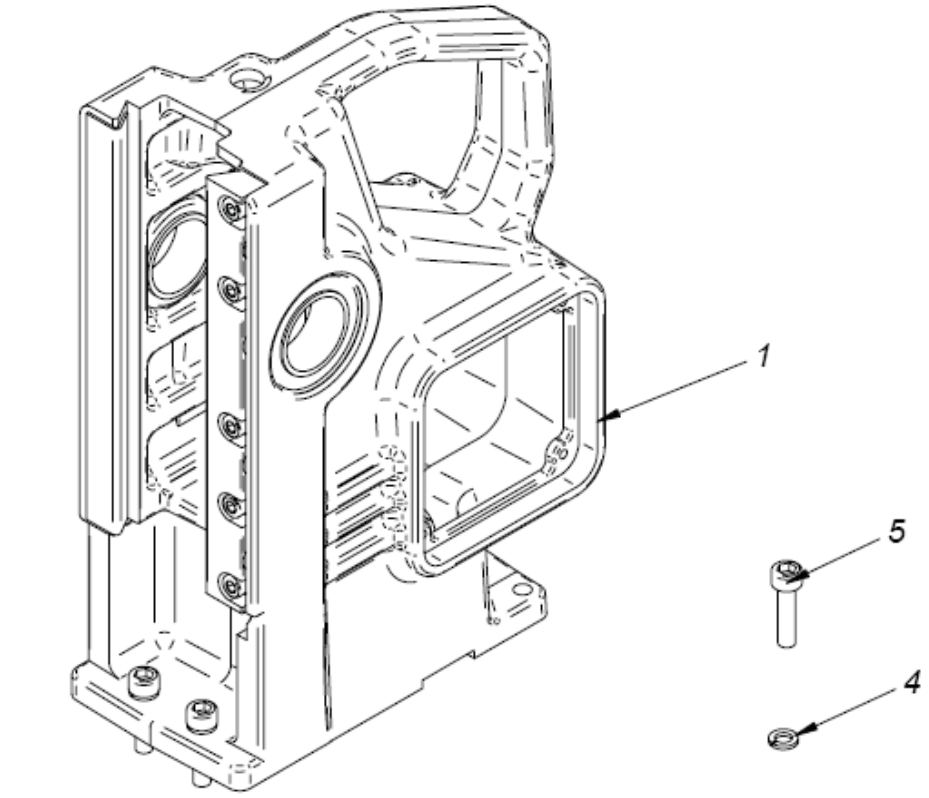
6. Breaking cutters
   - How is coolant being applied? Coolant must be supplied to interior of cutter.
   - Excessive feed pressure being applied when cutter initially contacts work surface.
   - Confirm material hardness.
   - Drilling stacked materials with incorrect cutter.
   - Dull cutters; dull or chipped cutting edges require excessive feed pressure, resulting in breakage.
   - Movement of machine on material - See "1. Magnetic base not holding securely"
   - Inconsistent hardness in material can cause cutter breakage

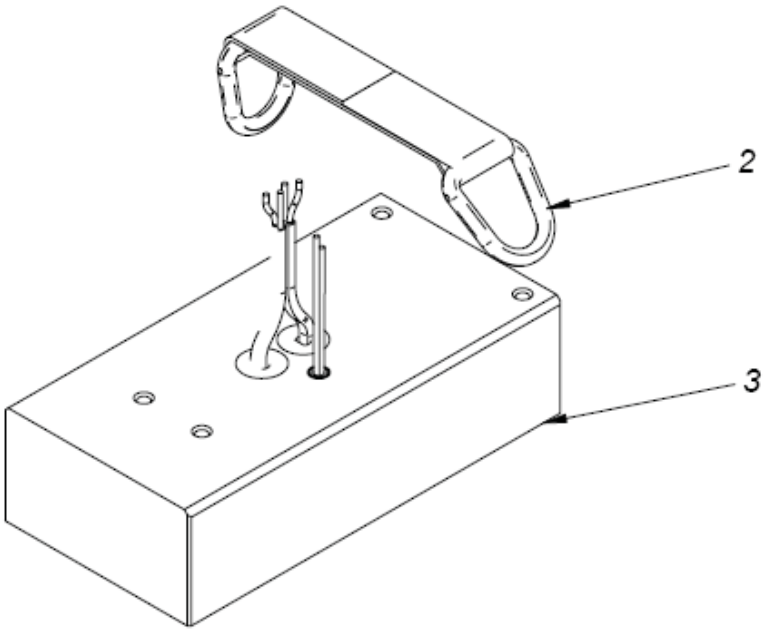
7. Oversized or rough holes
   - Insufficient coolant.
   - Excessive feed pressure.
   - Dull cutter.

HMPRO50		MAGNETIC DRILLING MACHINE HOLEMAKER PRO 50	
ITEM	**PART NUMBER**	**DESCRIPTION**	**QTY**
1	SPPRO5001	FRAME ASSEMBLY,	1
2	SPPRO5002	MOTOR COMPLETE 230V,	1
3	SPPRO5003	CONTROL PANEL 230V	1
4	SPPRO5004	GUARD ASSY,	1
5	SPPRO5005	STOP ROD	1
6	SPPRO5006	LOWER SLEEVE,	1
7	SPPRO5007	UPPER SLEEVE,	1
8	SPPRO5008	SAFTY PIPE,	1
9	SPPRO5009	PINION SHAFT,	1
10	SPPRO5010	SPOKE HANDLE INCLUDING KNOB (ASSY),	3
11	SPPRO5011	ARBOR SET - AMT2-C19/2-2	1
12	SPPRO5012	COOLANT SYSTEM	1
13	SPPRO5013	POWER CORD 230V 3x1,5	1
13.4	SPPRO501304	STRAIN RIELIEF PG11	1
15	SPPRO5015	NYLON WASHER SR1940,	4
16	SPPRO5016	EXTERNALE RETAINING RING 28z	1
17	SPPRO5017	SCREW M4X10 PHCRMS	2
18	SPPRO5018	SPRING WASHER-4.1	2
19	SPPRO5019	SPRING WASHER-4.3	1
20	SPPRO5020	PUSH SPRING,	2
21	SPPRO5021	SOCKET BUTTON HEAD CAP SCREW WITH FLANGE M5x25,	1
22	SPPRO5022	SOCKET BUTTON HEAD CAP SCREW WITH FLANGE M5x20,	1
23	SPPRO5023	CROSS RECESSED PAN HEAD TAPPING SCREW 3,5x13	4
24	SPPRO5024	WASHER,LOCK,INTERNAL STAR 3,7	4
25	SPPRO5025	SEAL O-RING 5x2	2

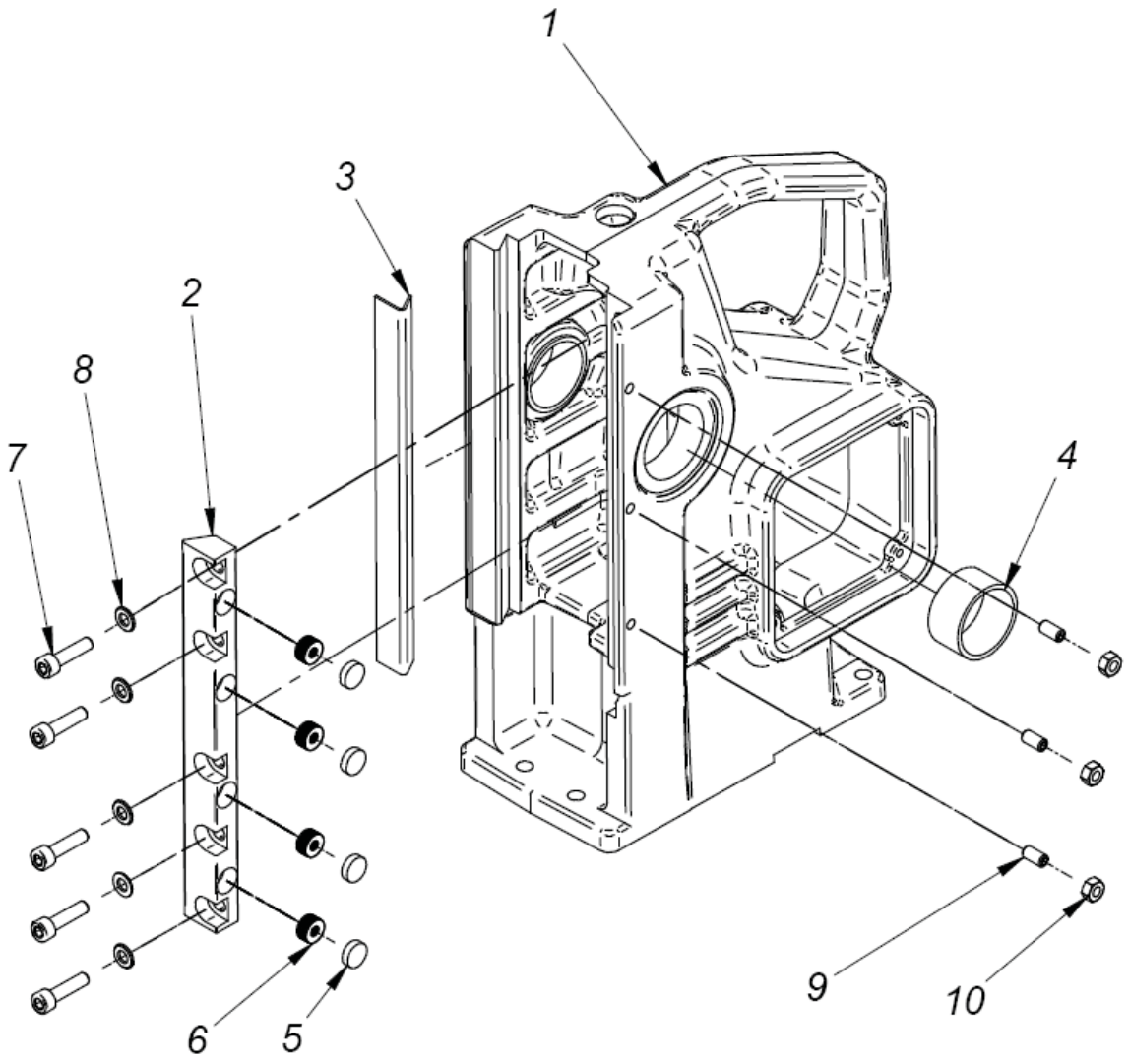


SPPRO5001		FRAME ASSEMBLY	
ITEM	**PART NUMBER**	**DESCRIPTION**	**QTY**
1.1	SPPRO500101	MAIN BODY ASSY	1
1.2	SPPRO500102	D-RING STRAP	1
1.3	SPPRO500103	ELECTROMAGNETIC BASE,	1
1.4	SPPRO500104	SPRING WASHER 6,1	4
1.5	SPPRO500105	HEX. SOCKET BOLT M6x25	4

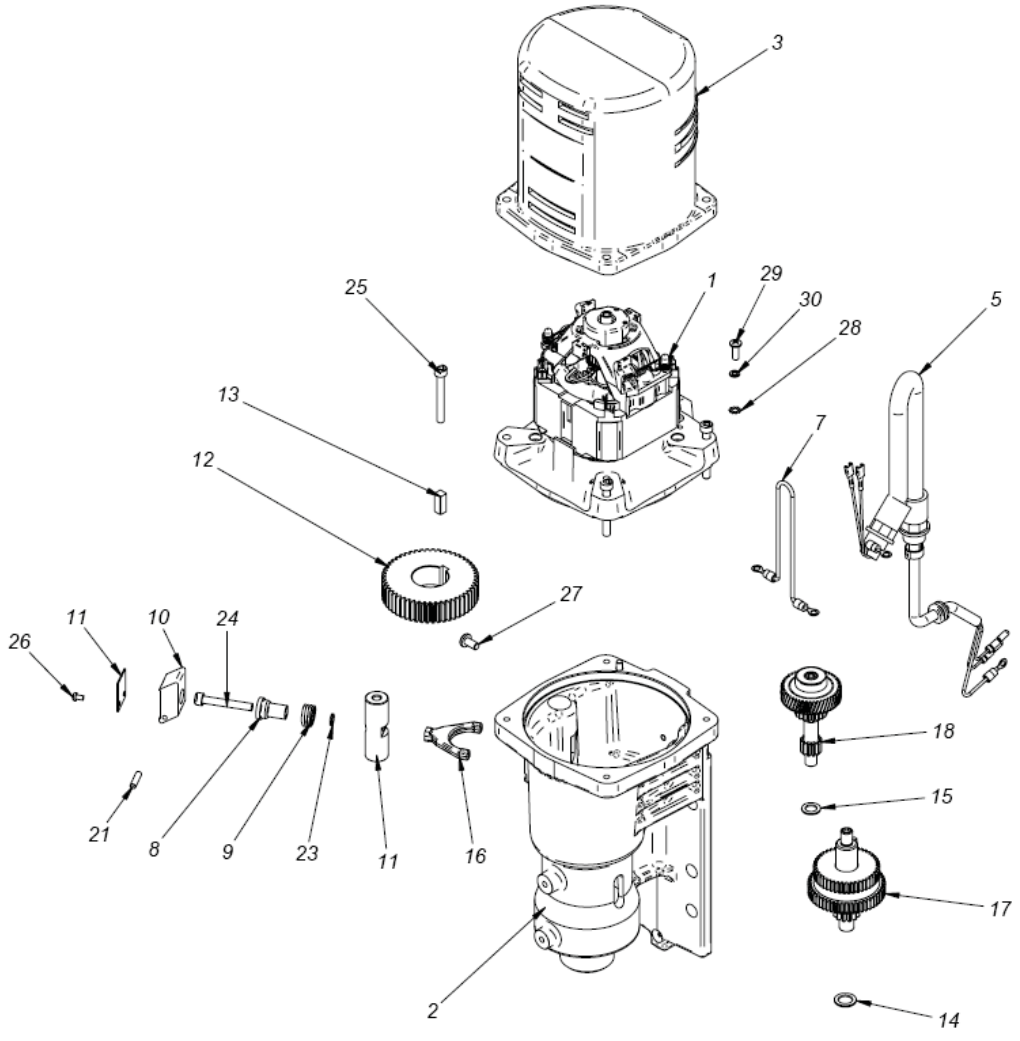




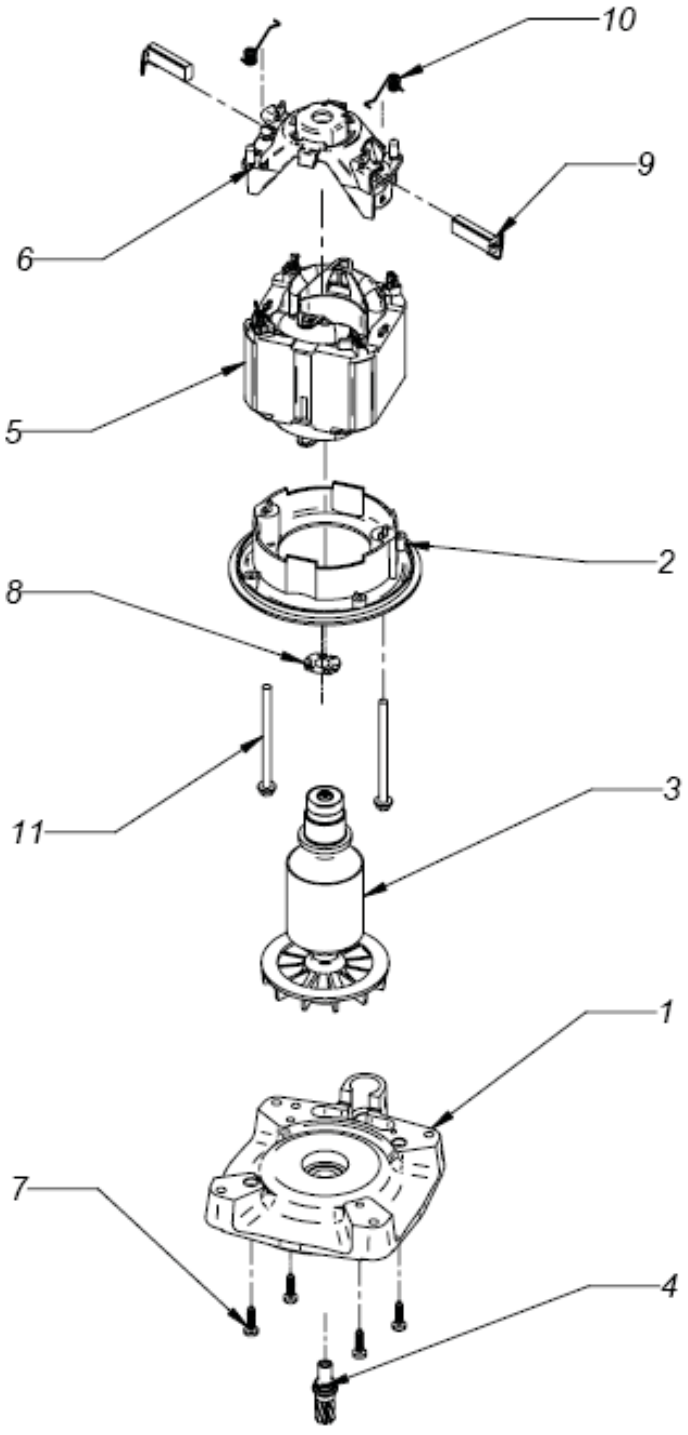
SPPRO500101		MAIN BODY ASSEMBLY	
ITEM	**PART NUMBER**	**DESCRIPTION**	**QTY**
1.1.1	SPPRO50010101	MAIN BODY	1
1.1.2	SPPRO50010102	PRESSURE PLATE	1
1.1.3	SPPRO50010103	SLIDE INSERT - LEFT	1
1.1.4	SPPRO50010104	SELF LUBRICATING SLEEVE 28,05H7x32x16,	2
1.1.5	SPPRO50010105	SPRING WASHER	4
1.1.6	SPPRO50010106	DISC SPRING 4,2x10x0,5	32
1.1.7	SPPRO50010107	HEX SOCKET BOLT-M5X20	5
1.1.8	SPPRO50010108	ROUND WASHER 5,3	5
1.1.9	SPPRO50010109	HEX SET SCREW M5X10	3
1.1.10	SPPRO50010110	NUT M5	3



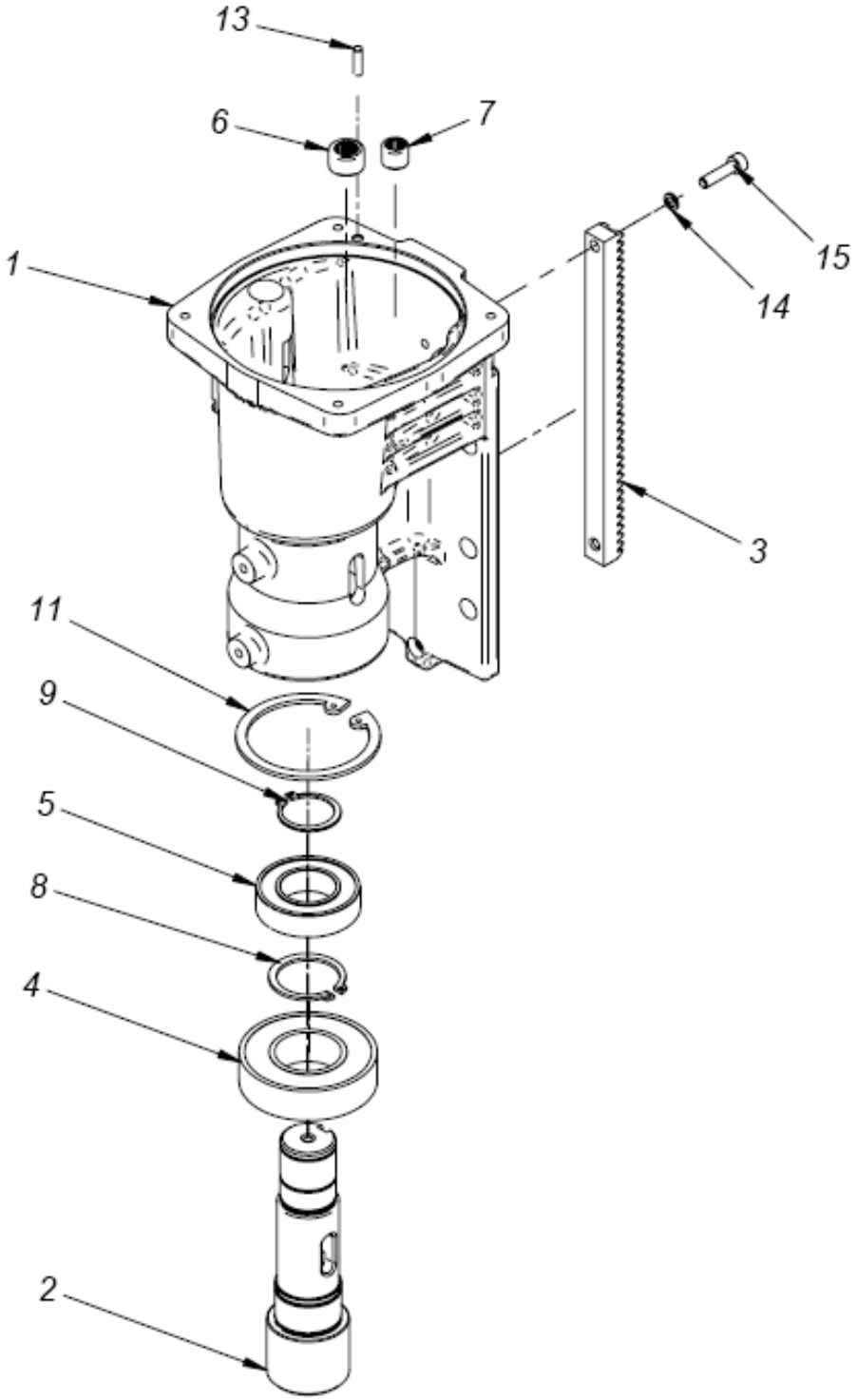
SPPRO5002		MOTOR COMPLETE 230V	
ITEM	**PART NUMBER**	**DESCRIPTION**	**QTY**
2.1	SPPRO500201	MOTOR ASSY/230V	1
2.2	SPPRO500202	GEARCASE ASSY	1
2.3	SPPRO500203	MOTOR HOUSING	1
2.5	SPPRO500205	MOTOR WIRE ASSY	1
2.7	SPPRO500207	NEUTRAL MOTOR WIRE ASSY	1
2.8	SPPRO500208	SHIFT DRIVE PIN (USA-5)	1
2.9	SPPRO500209	COMPRESSION SPRING (USA 5)	1
2.10	SPPRO500210	SHIFT LEVER	1
2.11	SPPRO500211	SHIFT PIN SHORT	1
2.12	SPPRO500212	GEAR z 52, m=1.25mm	1
2.13	SPPRO500213	SQUARE KEY 6x6x15	1
2.14	SPPRO500214	WASHER, THRUST 10x1 (2x2)	1
2.15	SPPRO500215	BEARING WASHER 8,1	1
2.16	SPPRO500216	SHIFT FORK	1
2.17	SPPRO500217	PINION SHAFT z12, z20 ASSY	1
2.18	SPPRO500218	PINION SHAFT Z=12 ASSY,	1
2.19	SPPRO500219	LABEL, SHIFT LEVER	1
2.20	SPPRO500220	BEARING, NEEDLE RHNA 081210	1
2.21	SPPRO500221	SPRING PIN 4x16	1
2.22	SPPRO500222	EXTERNALE RETAINING RING 25z	1
2.23	SPPRO500223	SPRING WASHER M5	1
2.24	SPPRO500224	HEX. SOCKET BOLT M5x35	1
2.25	SPPRO500225	HEX. SOCKET BOLT M5x40	4
2.26	SPPRO500226	SCREW M3x5 PHCRMS	2
2.27	SPPRO500227	CROSS RECESSED RAISED COUNTERSUNK HEAD SCREW M5x10	2
2.28	SPPRO500228	SCREW M4X12 PHCRMS	3
2.29	SPPRO500229	SPRING WASHER-4.3	2
2.30	SPPRO500230	SPRING WASHER-4.1	2



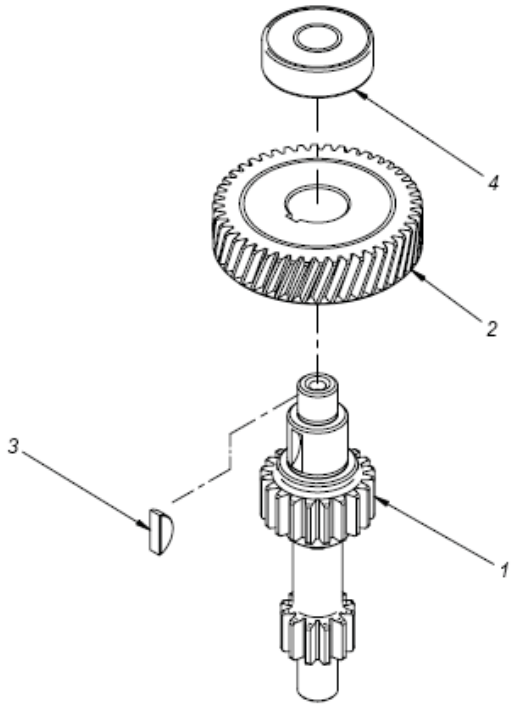
SPPRO500201		MOTOR ASSEMBLY	
ITEM	**PART NUMBER**	**DESCRIPTION**	**QTY**
2.1.1	SPPRO50020101	MOTOR COVER	1
2.1.2	SPPRO50020102	GUIDE FAN	1
2.1.3	SPPRO50020103	ARMATURE ASSY 230V	1
2.1.4	SPPRO50020104	ARMATURE TOOTH END z12	1
2.1.5	SPPRO50020105	FIELD 230V	1
2.1.6	SPPRO50020106	UPPER HOUSING	1
2.1.7	SPPRO50020107	CROSS RECESSED PAN HEAD TAPPING SCREW 4x16	4
2.1.8	SPPRO50020108	SPRING WASHER	1
2.1.9	SPPRO50020109	BRUSH 230V	2
2.1.10	SPPRO50020110	SPRING BRUSH	2
2.1.11	SPPRO50020111	HEXAGON BOLT M4x73	2



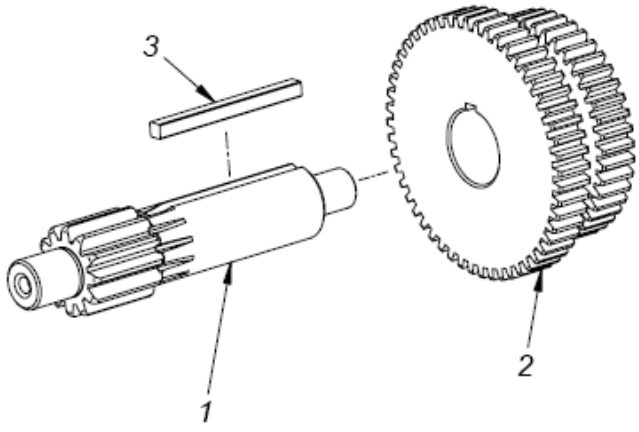
SPPRO500202		GEARBOX ASSEMBLY	
ITEM	**PART NUMBER**	**DESCRIPTION**	**QTY**
2.2.1	SPPRO50020201	GEARCASE	1
2.2.2	SPPRO50020202	SPINDLE	1
2.2.3	SPPRO50020203	GEAR RACK	1
2.2.4	SPPRO50020204	UPPER SPINDLE BEARING 6206 2Z P6 S 30x62x16	1
2.2.5	SPPRO50020205	UPPER SPINDLE BEARING 6005 25x47x12	1
2.2.6	SPPRO50020206	BEARING, NEEDLE RHNA 101610	1
2.2.7	SPPRO50020207	BEARING, NEEDLE RHNA 081210	1
2.2.8	SPPRO50020208	EXTERNAL RETAINING RING 30z	1
2.2.9	SPPRO50020209	EXTERNALE RETAINING RING 25z	1
2.2.11	SPPRO50020211	INTERNAL RETAINING RING 62W	1
2.2.13	SPPRO50020213	PIN 6x14	1
2.2.14	SPPRO50020214	SPRING WASHER 5.1	2
2.2.15	SPPRO50020215	HEX SOCKET BOLT-M5X20	2



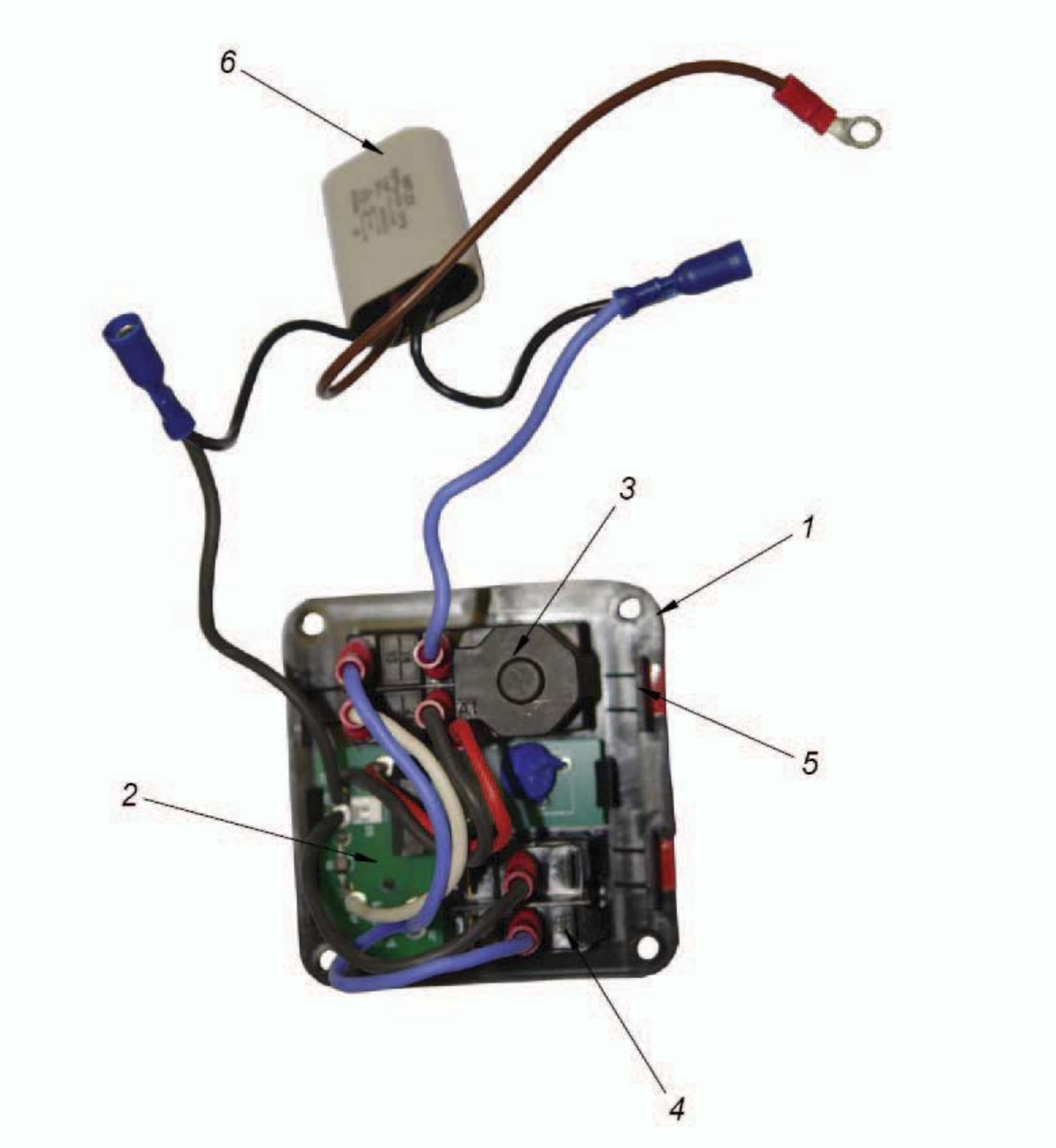
SPPRO500217		PINION SHAFT z12, z20 ASSEMBLY	
ITEM	**PART NUMBER**	**DESCRIPTION**	**QTY**
2.17.1	SPPRO50021701	GEARSHAFT, 12T/20T (2x2)	1
2.17.2	SPPRO50021702	HELICAL INPUT GEAR z46	1
2.17.3	SPPRO50021703	WOODRUFF KEY 3x3.7	1
2.17.4	SPPRO50021704	BEARING, BALL- 8X22X7	1

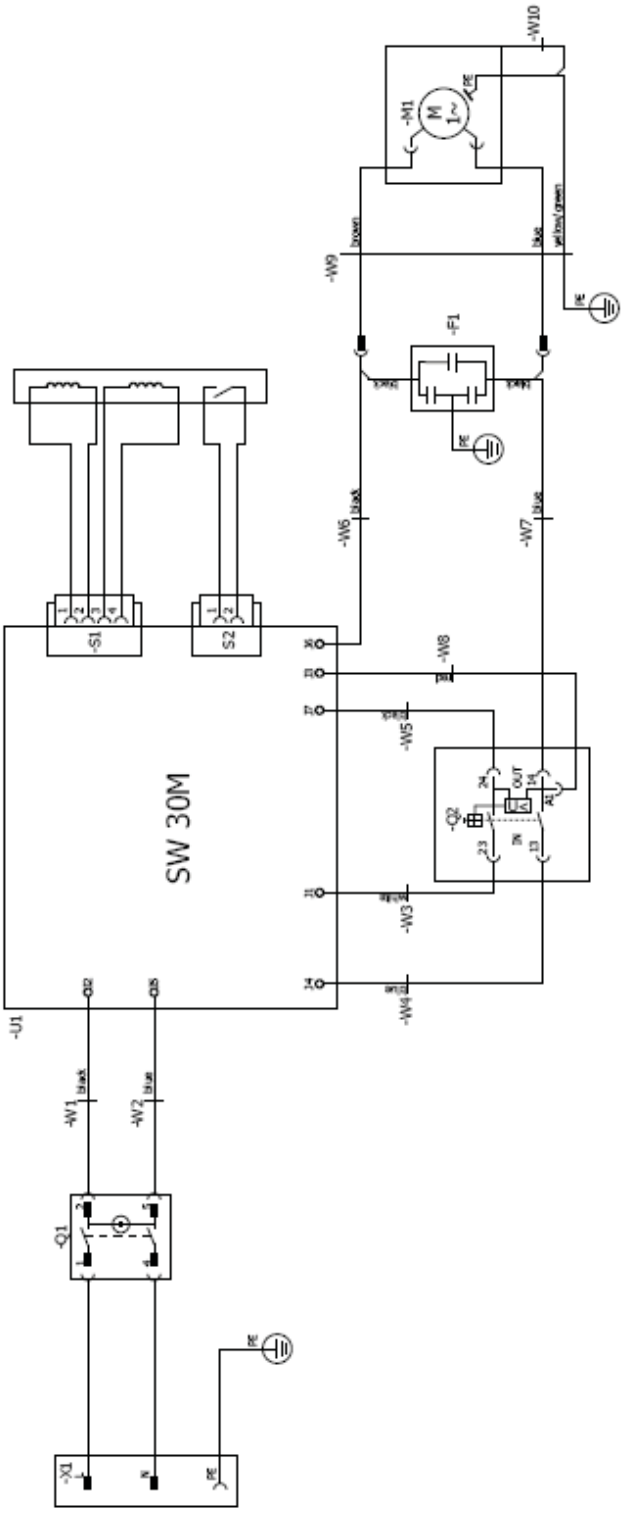


SPPRO500218		PINION SHAFT Z=12 ASSY,	
ITEM	**PART NUMBER**	**DESCRIPTION**	**QTY**
2.18.1	SPPRO50021801	GEARSHAFT, 12T (2x2)	1
2.18.2	SPPRO50021802	CLUSTER GEAR z52/z44, m=1mm	1
2.18.3	SPPRO50021803	SQUARE KEY 3x3x36	1



SPPRO5003			CONTROL PANEL ASSEMBLY	
ITEM	**PART NUMBER**		**DESCRIPTION**	**QTY**
3.1	SPPRO500301		PANEL PLATE ASSY	1
3.2	SPPRO500302		ELECTRONIC CONTROLLER SW-30M	1
3.3	SPPRO500303		SWITCH START-STOP /230V	1
3.4	SPPRO500304		SWITCH MAGNET	1
3.5	SPPRO500305		METAL LOCK,	4
3.6	SPPRO500306		INTERFERENCE ELIMINATOR,	1




SW 30M
-U1
-X1
-Q1
-Q2
-S1
S2
-F1
-M1
M
1~
-W1
-W2
-W3
-W4
-W5
-W6
-W7
-W8
-W9
-W10
PE
N
L1
L2
L3
black
blue
brown
yellow/green